Blue-grey pigmented lesions on trauma sites

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Dermoscopy is useful in the assessment of a blue-grey pigmented lesion on a trauma site. The need for biopsy must always be considered carefully.

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CASE PRESENTATIONS

Case 1

A 47-year-old man with a history of significant sun exposure presented for a full skin check. He had no personal history or family history of melanoma or other skin cancer.

On examination, an area of diffuse blue-grey pigmentation was found on the patient's left knee (Figure 1a). He reported that he had fallen off his bicycle many times, landing on asphalt surfaces, and that the pigmentation had been present and stable since one of these falls. Dermoscopy showed grouped blue-grey dots and globules with adjacent areas of scarring (Figure 1b). No features specific for a melanocytic lesion or basal cell carcinoma (BCC) were seen.

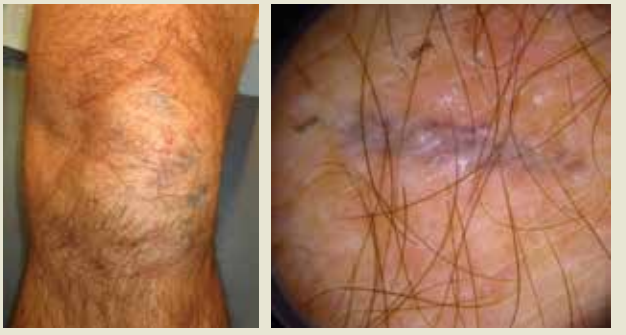
A diagnosis was made of exogenous pigmentation. Biopsy was not considered necessary because the patient reported the lesions to be longstanding and unchanging. No changes have been observed on follow up.

Case 2

A 53-year-old man presented for his regular skin examination. He had a history of melanoma in situ, which was removed from his back two years previously.

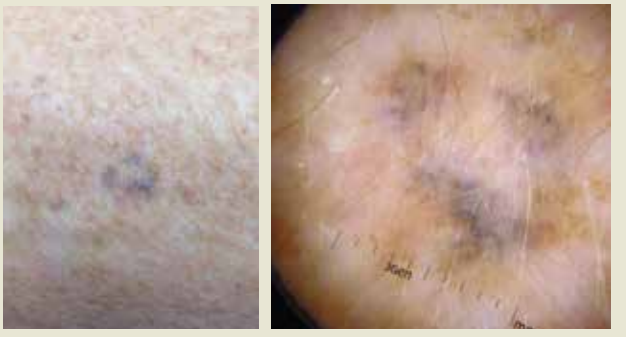
On examination, a pigmented bluish lesion (1 cm) was found on the patient's right thigh (Figure 2a). Dermoscopy showed blue-grey pigmentation forming ill-defined globules and homogeneous areas, with central depigmentation (Figure 2b).

CASE 1



Figures 1a and 1b. a (left). Diffuse blue-grey pigmentation on the patient's knee. b (right). Dermoscopy revealed grouped blue-grey blotches, dots and globules with adjacent whitish areas.

CASE 2



Figures 2a and 2b. a (left). A pigmented bluish lesion (1 cm) on the patient's thigh. b (right). Dermoscopy revealed blue-grey pigmentation forming ill-defined globules and homogeneous areas, with central depigmentation.

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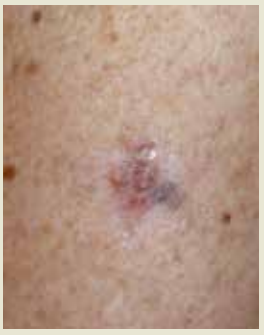
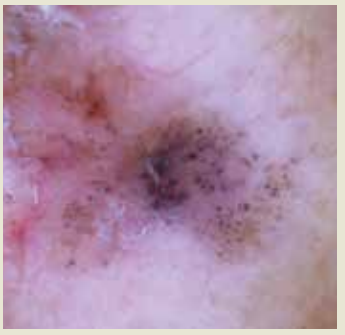
BLUE-GREY PIGMENTATION: IMPORTANT DIFFERENTIAL DIAGNOSES





Figures 3a and 3b. a (left). Basal cell carcinoma presenting as a pink-brownish and blue-grey papule on the leg. b (right). Dermoscopy showed blue-grey dots and globules, spoke-wheel structures and few arborising telangiectasia.

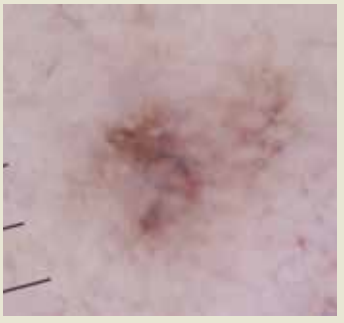
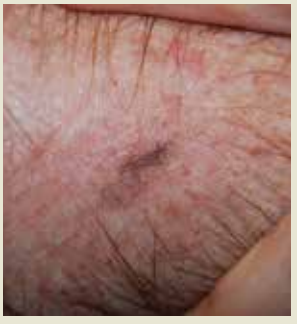
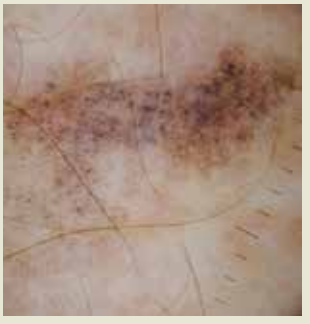


Figure 4 (left). Lentigo maligna melanoma (0.1 mm Breslow thickness). Dermoscopy showed brown hyperpigmented follicular openings, fine greyish dots and globules, one obliterated follicular opening and blue-grey rhomboidal structures.





Figures 5a and 5b. a (left). A lesion on the arm with atypical pigmentation and irregular borders. b (right). Dermoscopy showed blue-grey dots and globules, with some areas with 'salt and pepper' mottling. Biopsy was required to rule out a regressing melanocytic lesion and revealed no evidence of malignancy.

There were no features typical of BCC or melanocytic lesion, but a regressing melanocytic lesion could not be ruled out.

The patient recalled a metal explosion that had injured his thigh in his youth and he was confident that the lesion had been present since then without any change. A diagnosis was made of exogenous pigmentation. Given the patient's account that the lesion was longstanding and unchanging, a biopsy was not considered necessary. The patient continued to have regular skin examinations, and no changes have been seen with long-term monitoring.

DISCUSSION

Blue-grey lesions are often difficult to assess, even with dermoscopy. The blue colour indicates that pigment is located in the reticular dermis. Homogeneous blue pigmentation is a nonspecific feature and can be found in several lesions, including blue naevi, pigmented BCCs (Figures 3a and b), nodular melanomas (Figure 4), melanoma metastases and vascular lesions. It can also be found in lesions caused by foreign bodies that penetrate the skin during trauma and in tattoos.[1-3] The dermoscopic characteristics of some common malignant lesions with blue-grey pigment that mimic exogenous pigmentation and should be included in the differential diagnosis are summarised in the Box on page 63.

Dermoscopic features of lesions containing exogenous pigment have not been defined clearly. There are many sources of such pigmented materials, and these may have different dermoscopic characteristics. The dermoscopic pattern of exogenous ochronosis on the face has been reported as brown-grey and globular-like, with arciform to annular structures around the follicular openings.[4] Exogenous pigmentation has also been described in an acral location, mimicking the parallel ridge pattern that is typical of melanoma.[5] Homogeneous bluish pigmentation has been found in radiation tattoos.[6] In the patients described above, two different causes of exogenous pigmentation, asphalt (in Case 1) and metal (in Case 2), presented with the common features of homogeneous blue-grey pigmentation, grouped blue-grey irregular and ill-defined blotches, dots or globules with adjacent areas of scarring (hypopigmented whitish with delicate vessels).

If no other dermoscopic criteria are present in a blue-grey lesion and its evolution is unknown then biopsy is necessary to differentiate between a benign and a malignant lesion (Figures 5a and b). However, if a lesion is known to be of longstanding duration and unchanging or if the clinical history is consistent with stable exogenous pigmentation then avoiding biopsy can be considered.

Should the possibility of a malignant lesion such as melanoma be completely ruled out after a history of trauma? An association between trauma and melanoma has been reported, mostly in melanoma of the toenail apparatus.[7] Whether a single episode or chronic trauma can be considered a triggering factor for melanoma formation is controversial, as injuries are frequent and patients in retrospective studies tend to recall more about lesions suffered at the melanoma site than at other sites. It has been suggested that chronic trauma of a pre-existing mole can induce melanoma, and it is recommended that repeated inflammation of moles be avoided.[8] A recent epidemiological study conducted in a Chinese population described a potential

SOME DERMOSCOPIC FEATURES OF COMMON SKIN MALIGNANCIES WITH BLUE-GREY PIGMENT

Basal cell carcinoma (BCC) and melanoma are common malignant lesions with blue-grey pigment that mimic exogenous pigmentation and should be included in the differential diagnosis of a blue-grey pigmented lesion.

Basal cell carcinoma (BCC)

- Absence of pigment network
- Linear and arborising telangiectasia
- Maple leaf-like areas on the periphery of the lesion
- Blue-grey ovoid nests or blotches
- Blue-grey globules
- Specks of brown and grey pigment, structureless areas
- Spoke wheel areas (radial projections from a well circumscribed dark central hub)
- Focal ulceration

Melanoma

Lentigo maligna

- Hyperpigmented asymmetrical follicular openings
- Fine dots and globules (annular–granular pattern)

*Lentigo maligna melanoma**

- Pigmented rhomboidal structures
- Obliterated follicular openings

Regressing melanoma

- Scar-like depigmentation
- Chrysalids (parallel/antiparallel white shiny streaks, an artefact seen only with polarised dermoscopy)
- Remnants of network
- Reticular blue-grey areas, peppering

* Dermoscopic features of lentigo maligna melanoma that favour invasion.

association between traumatic events and melanoma of the extremities, especially the lower limbs.[9] However, in an earlier retrospective questionnaire only 8.7% of 369 melanoma patients considered that an association between trauma and their melanoma formation was likely.[8] In this study, most of the patients who mentioned trauma suffered from acral melanoma or melanoma located on the extremities (where a history of trauma would be expected to be more frequent), and the researchers concluded that there was no evidence for traumatic events as a causative factor for melanoma.[8] Importantly, patients reporting trauma often delayed the diagnosis and had higher Breslow thickness.[7,8] In 1984, one researcher suggested that if trauma as a common event at acral sites is a cofactor for melanoma then the incidence of subungual and other acrolentiginous melanomas would be expected to be higher.[10]

In our opinion, biopsy or at least digital monitoring should be organised so that melanoma is not missed if the past history of a blue-grey pigmented lesion is unclear, or if there are any changes in a blue-grey pigmented lesion (even if the patient recalls a clear cause for the trauma).

KEY POINTS

- Blue-grey pigmentation is a nonspecific dermoscopic feature and can be found in several lesions, including blue naevi, pigmented BCCs, nodular melanomas, melanoma metastases and vascular lesions. It can also be found in lesions that result from penetration of exogenous pigmented materials.
- An association between trauma and melanoma has been reported but remains controversial.
- A biopsy should be performed for any suspicious blue-grey pigmented lesion of unknown evolution.
- Biopsy can be avoided for blue-grey lesions that are known to be of longstanding duration and nonchanging. However, biopsy or at least digital monitoring should be organised so that melanoma is not missed if the past history of a blue-grey pigmented lesion is unclear, or if there are any changes in a blue-grey pigmented lesion (even if the patient recalls a clear cause for the trauma). MT

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COMPETING INTERESTS: None.